

The background image shows the interior of a large astronomical observatory dome. A massive telescope structure, consisting of a large primary mirror and a secondary mirror mounted on a complex mechanical frame, is visible. The structure is painted in light blue and white. The dome's interior is made of large, light-colored panels. The title 'Telescope Alignment on the Blanco' is overlaid in a large, black, sans-serif font.

Telescope Alignment on the Blanco

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Objectives

- Measure misalignment effects
 - Measure relative displacement of prime focus with respect to the primary mirror
- Correct misalignment
 - Feed back displacement data to hexapod
- Better data!

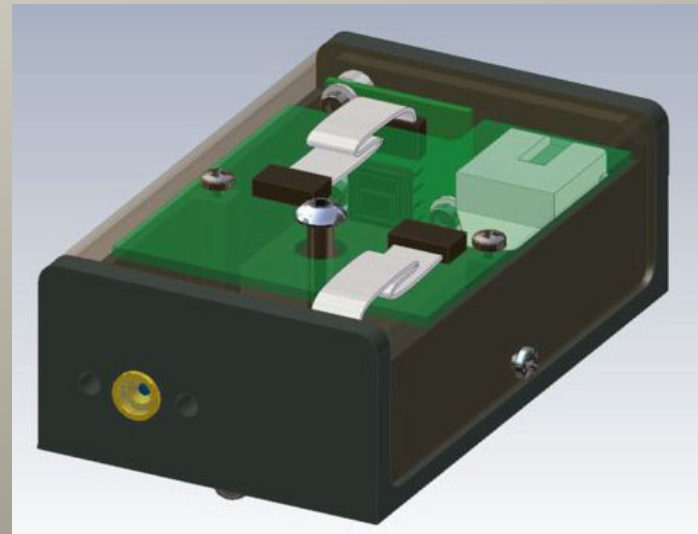
BCAMs

- Brandeis CCD Angle Monitors
- 2 red diode lasers, 1 CCD
- Field of view: angular cone 30mrad x 40mrad
- Relative accuracy: 5 μ rad

At 10m, this corresponds to:

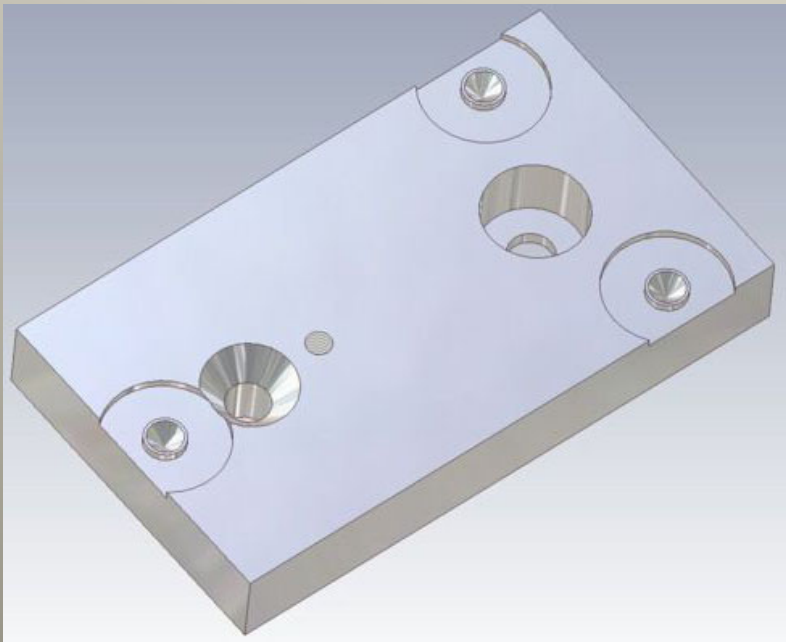
Field of view: 30 cm x 40 cm

Relative accuracy: 50 μ m



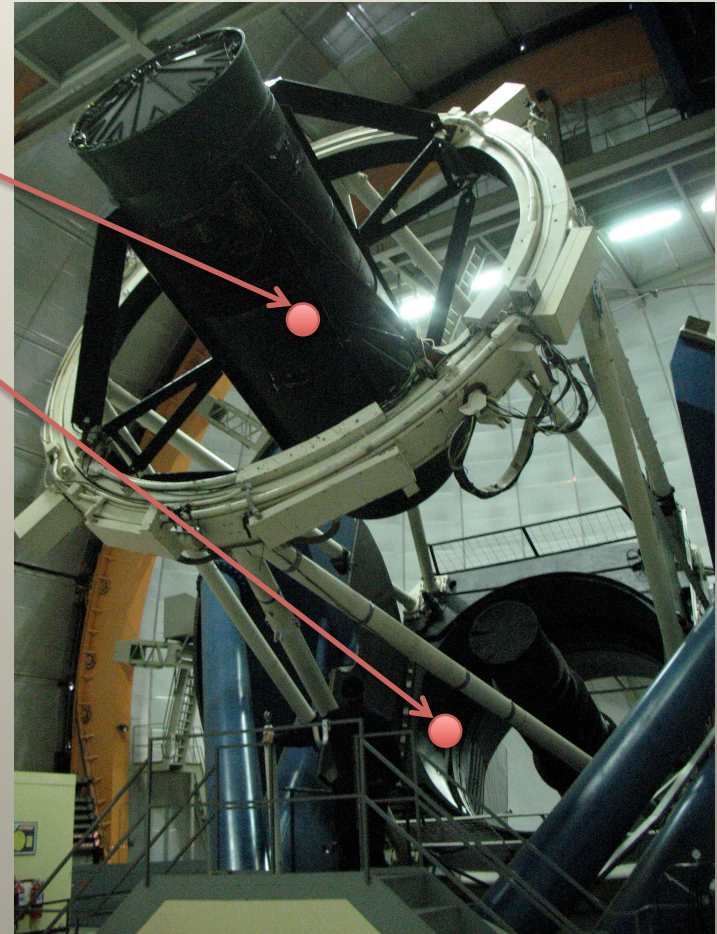
Mounting the BCAMs

- Kinematic mount
- Two angular degrees of freedom



Mounting the BCAMs

- BCAM #1: Outside of prime focus cage
- BCAM #2: Outside wall of primary mirror cell



Mounting the BCAMs

BCAM #1



BCAM #2

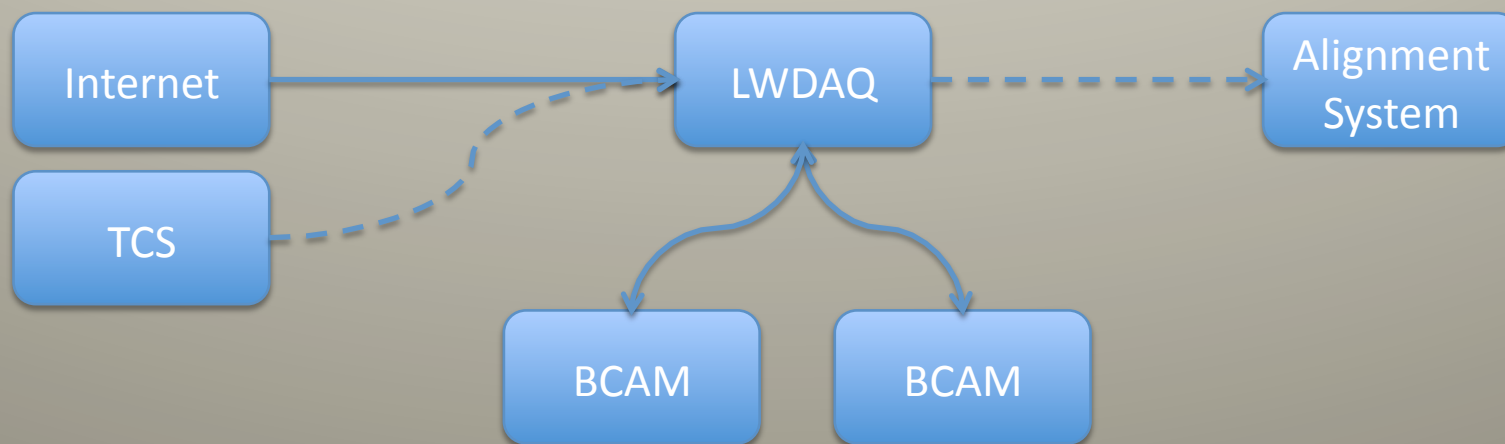


12/2/09

DES Collaboration Meeting

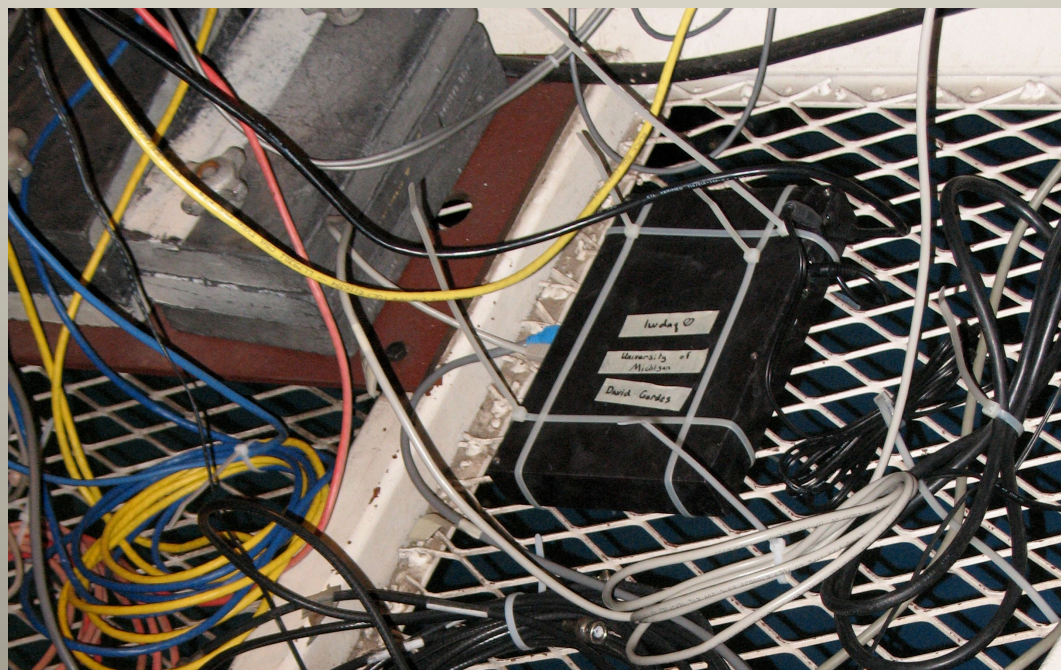
Hardware/Software Control

- LWDAQ driver acts as a “hub” for BCAMs
- LWDAQ can be accessed over internet



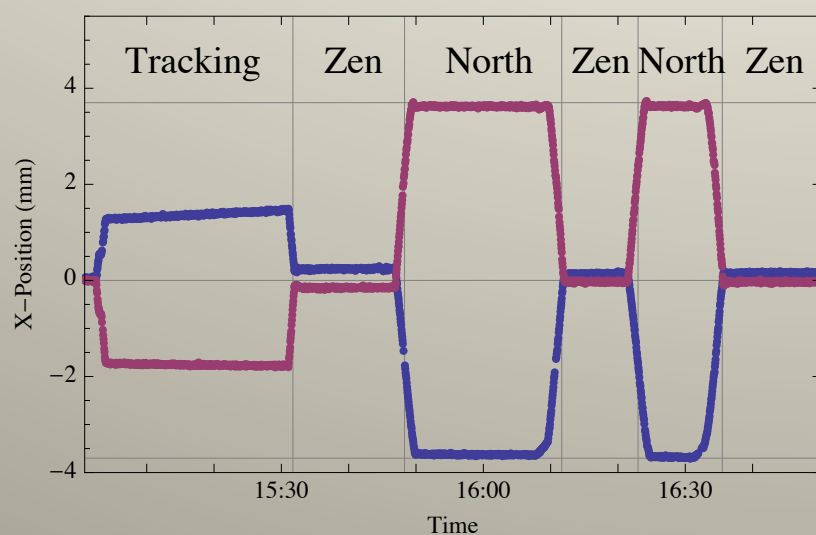
LWDAQ Installation

Located in Cassegrain cage

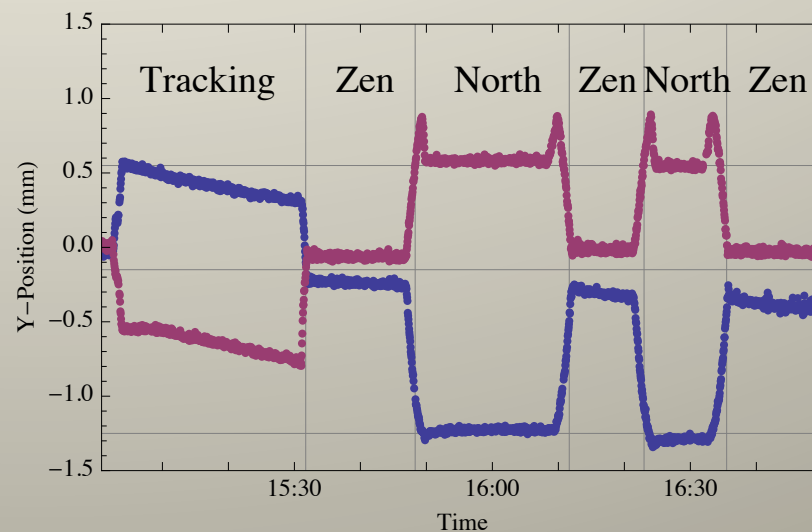


Preliminary Results

X-Positions (mm)



Y-Positions (mm)



Accuracy: $\sim 5\mu\text{m}$

Readout rate: 2 Hz

Note: tracking at 20°S

Conclusions & Future Work

- Misalignment/hysteresis effects clearly present
- BCAMs seem to be an excellent method for measuring these effects
- Better mounting points needed
- Integration into new TCS
- Hexapod feedback is feasible